

# Facts from the Field

## I-Joists and hanger details



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This month we will discuss a few aspects of joist hangers and I-joists, with commentary on web stiffeners, backer blocks and filler blocks. It is easy to confuse what each of these are, and how they should be used with joist hangers.

The general rule is that every round or obround hole in a joist hanger should have a proper nail in it (this does not include the larger diameter holes that are often a part of the manufacturing process). Diamond and triangular shaped holes do not require nails under normal conditions, but may be required by the designer in special cases. (It is well beyond the scope of the inspection to know when these nails are required). It is very important that proper fasteners be used in order to achieve the full bearing capacity of the hanger. The most common type of nail specified is a 10d shank that is 1.5" long. Drywall screws and roofing nails are *not acceptable* for this purpose, especially when used in an exterior application! Joist hangers typically depend on the shear strength of the nail, and drywall screws and roofing nails are not strong enough to meet manufacturer specifications for joist hangers. I always write up the use of these non-standard fasteners as a significant issue, and possibly a safety issue depending on circumstances.

Missing fasteners also directly affect the strength of the hanger assembly. If a joist hanger has five holes on each side into the face of the beam that supports the joist and only four are filled, the strength of that connector is reduced by 20%. This often occurs in situations where the

hanger is vertically offset from the support member such that there is no nailing surface behind a portion of the hanger.

Hangers may not be splayed at the top. The resultant gap at the sides of the top of the hanger enable the possibility of lateral rotation of the joist to occur, and raises the height of the supported joist. In most applications, the height of the hanger must be at least 60% of the depth of the joist, although some applications may specify full depth hangers.

Filler blocks serve the primary purpose of tying together two separate I-joists so that they work together as a single unit. As such, they are not a direct concern with joist hangers, but often occur in conjunction with them. Web stiffeners generally support the web vertically, to minimize the risk of the web buckling sideways when put under loading, and to provide a uniform nailing face for certain hangers. Backer blocking is needed to support the attachment of joist hangers, and is required on both sides of a single I-joist.

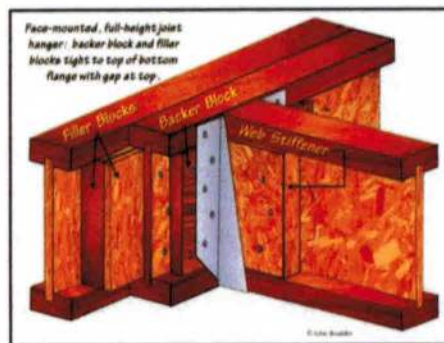


Illustration 1

Illustration #1 shows the specifications for a face-mounted hanger on I-joists. Note that the backer blocking should be tight to the top of the bottom flange, and there should be at least a 1/8" gap under

the top flange. The web stiffener is shown in this illustration, but may not be needed in many applications.

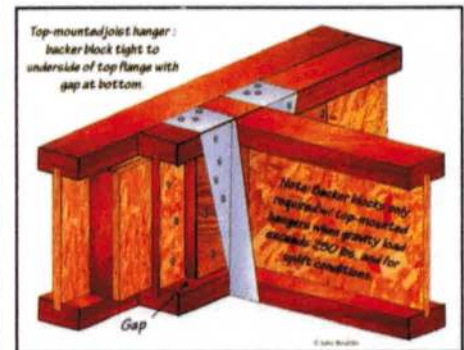


Illustration 2

In illustration #2, we see a top-mounted hanger installation. The backer block should be tight to the underside of the top flange, with a gap above the bottom flange. The filler blocking shown in both images is designed to tie the webs of two adjoining I-joists together, so that they may operate as a single bearing member. These blocks should be installed so that they do not make contact with both the top and bottom flange at the same time.

I hope this quick review will be useful as you're out there in the field working your inspector magic.

Now go out there and prevent a disaster! ■

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